

WHAT IS CLAIMED IS:

1. A compound of formula (I)



(I),

- 5 or a pharmaceutically acceptable salt, ester, prodrug, or solvate thereof, wherein

AA³ is selected from the group consisting of

- (1) glutaminyl,
- (2) phenylalanyl,
- (3) valyl, and
- 10 (4) asparaginy;

AA⁴ is selected from the group consisting of

- (1) D-isoleucyl,
- (2) isoleucyl,
- (3) D-leucyl, and
- 15 (4) D-alloisoleucyl;

AA⁵ is selected from the group consisting of

- (1) seryl,
- (2) methionyl,
- (3) allothreonyl,
- 20 (4) threonyl, and
- (5) tyrosyl;

AA⁶ is selected from the group consisting of

- (1) norvalyl,
- (2) seryl,
- (3) tryptophyl,
- 25 (4) glutaminyl, and
- (5) prolyl;

AA⁷ is selected from the group consisting of

- (1) isoleucyl,
- 30 (2) D-isoleucyl,
- (3) lysyl(acetyl), and
- (4) prolyl; and

AA¹⁰ is selected from the group consisting of

- (1) D-alanylamine,
- 35 (2) ethylamine, and
- (3) isopropylamine;

with the proviso that one of AA⁴ and AA⁷ is a D-amino acid.

2. A compound according to Claim 1 wherein AA⁴ is D-Ile.

3. A compound according to Claim 2 selected from the group consisting of

N-Ac-Sar-Gly-Gln-D-Ile-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,

N-Ac-Sar-Gly-Phe-D-Ile-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,

N-Ac-Sar-Gly-Val-D-Ile-alloThr-Nva-Ile-Arg-ProNHCH₂CH₃,

5 N-Ac-Sar-Gly-Val-D-Ile-Thr-Nva-D-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Gln-D-Ile-Thr-Nva-D-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Asn-D-Ile-Thr-Nva-Lys(Ac)-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Val-D-Ile-alloThr-Ser-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Gln-D-Ile-alloThr-Nva-Ile-Arg-ProNHCH₂CH₃,

10 N-Ac-Sar-Gly-Val-D-Ile-alloThr-Nva-Pro-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Val-D-Ile-Thr-Gln-D-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Val-D-Ile-Met-Nva-Ile-Arg-Pro-D-AlaNH₂, and

N-Ac-Sar-Gly-Val-D-Ile-alloThr-Pro-Ile-Arg-ProNHCH₂CH₃.

4. A compound according to Claim 1 wherein AA⁴ is D-Leu.

5. A compound according to Claim 4 selected from the group consisting of

N-Ac-Sar-Gly-Asn-D-Leu-Ser-Nva-Ile-Arg-ProNHCH₂CH₃, and

N-Ac-Sar-Gly-Asn-D-Leu-Thr-Ser-Ile-Arg-ProNHCH₂CH₃.

6. A compound according to Claim 1 wherein AA⁴ is D-alloIle.

7. A compound according to Claim 6 selected from the group consisting of

N-Ac-Sar-Gly-Val-D-alloIle-Ser-Thr-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Gln-D-alloIle-Tyr-Nva-D-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Gln-D-alloIle-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,

5 N-Ac-Sar-Gly-Val-D-alloIle-Thr-Trp-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Val-D-alloIle-Ser-Ser-Ile-Arg-ProNHCH(CH₃)₂,

N-Ac-Sar-Gly-Val-D-alloIle-Thr-Trp-D-Ile-Arg-ProNHCH₂CH₃,

N-Ac-Sar-Gly-Val-D-alloIle-alloThr-Gln-Ile-Arg-ProNHCH₂CH₃, and

N-Ac-Sar-Gly-Val-D-alloIle-Ser-Ser-Ile-Arg-Pro-D-AlaNH₂.

8. A pharmaceutical composition comprising a compound of Claim 1, or a pharmaceutically acceptable salt, ester, prodrug, or solvate thereof, and a pharmaceutically acceptable carrier.

9. A method of treating a patient in need of anti-angiogenesis therapy comprising administering to the patient in need a therapeutically effective amount of a compound in Claim 1, or a pharmaceutically acceptable salt, ester, prodrug, or solvate thereof.

10. A composition for the treatment of a disease selected from cancer, arthritis, psoriasis, angiogenesis of the eye associated with infection or surgical intervention, macular degeneration and diabetic retinopathy comprising a peptide as defined in Claim 1, or a pharmaceutically acceptable salt, ester, prodrug, or solvate thereof, in combination with a pharmaceutically acceptable carrier.

11. A method of isolating a receptor from an endothelial cell comprising binding a peptide as defined in Claim 1, or a pharmaceutically acceptable salt, ester, prodrug, or solvate thereof, to the receptor to form a peptide receptor complex; isolating the peptide receptor complex; and purifying the receptor.

12. A compound selected from the group consisting of
N-Ac-Sar-Gly-Gln-D-Ile-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,
N-Ac-Sar-Gly-Phe-D-Ile-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,
N-Ac-Sar-Gln-Val-D-Ile-Thr-Nva-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Val-D-Ile-alloThr-Nva-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Val-D-Ile-Thr-Nva-D-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Asn-D-Leu-Ser-Nva-Ile-Arg-ProNHCH₂CH₃,
N-(6-Me-Nicotinyl)-Sar-Gly-Val-D-Ile-Thr-Nva-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Val-Ile-Thr-Nva-D-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Val-D-alloIle-Ser-Thr-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Gln-D-Ile-Thr-Nva-D-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Asn-D-Ile-Thr-Nva-Lys(Ac)-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Gln-D-alloIle-Tyr-Nva-D-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Gln-D-alloIle-Thr-Nva-Ile-Arg-Pro-D-AlaNH₂,
N-Ac-Sar-Gly-Asn-D-Leu-Thr-Ser-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Val-D-Ile-alloThr-Ser-Ile-Arg-ProNHCH₂CH₃,
N-Ac-Sar-Gly-Gln-D-Ile-alloThr-Nva-Ile-Arg-ProNHCH₂CH₃,

- N-Ac-Sar-Gly-Val-D-Ile-alloThr-Nva-Pro-Arg-ProNHCH₂CH₃,
 N-Ac-Sar-Gly-Val-D-alloIle-Thr-Trp-Ile-Arg-ProNHCH₂CH₃,
 20 N-Ac-Sar-Gly-Val-D-alloIle-Ser-Ser-Ile-Arg-ProNHCH(CH₃)₂,
 N-Ac-Sar-Gly-Val-D-Ile-Thr-Gln-D-Ile-Arg-ProNHCH₂CH₃,
 N-Ac-Sar-Gly-Val-D-alloIle-Thr-Trp-D-Ile-Arg-ProNHCH₂CH₃,
 N-Ac-Sar-Gly-Val-D-alloIle-Thr-Nva-Ile-Arg-D-ProNHCH₂CH₃,
 N-Ac-Sar-Gly-Val-D-Ile-Met-Nva-Ile-Arg-Pro-D-AlaNH₂,
 25 N-Ac-Sar-Gly-Val-D-Ile-alloThr-Pro-Ile-Arg-ProNHCH₂CH₃,
 N-Ac-Sar-Gly-Val-D-alloIle-alloThr-Gln-Ile-Arg-ProNHCH₂CH₃, and
 N-Ac-Sar-Gly-Val-D-alloIle-Ser-Ser-Ile-Arg-Pro-D-AlaNH₂.

For reference